

Applicant : James J. Cervera et al.
Serial No. : 09/902,884
Filed : July 11, 2001
Page : 9 of 13

Attorney's Docket No.: 08935-245001 / M-4962

REMARKS

Applicants have amended claims 10, 22, and 39, and have cancelled claims 44 and 45 without prejudice. Applicants also have added new claim 50. Applicants acknowledge the Examiner's allowance of claims 1, 4-9, and 28-38.

Claims 1, 4-11, 14-16, 22, 24-26, 28-44, and 46-50, of which claims 1, 10, 22, 28, and 39 are independent in form, are presented for examination.

Claim Rejections - 35 U.S.C. § 112

The Examiner has rejected claims 10, 11, 14-16, 22, and 24-26 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement.

As amended, claims 10 and 14-16 recite a primary alkaline battery including expanded graphite particles having a BET surface area of greater than about 5 m²/g and less than about 14 m²/g. Claim 11 recites a primary alkaline battery including expanded graphite particles having a BET surface area of greater than about 10 m²/g and less than about 14 m²/g.

The application provides explicit support for expanded graphite particles having a BET surface area of greater than about 5 m²/g or about 10 m²/g. (See, e.g., Application, page 2, lines 16-20.) Furthermore, Table 1 of the application discloses expanded graphite particles with a BET surface area of 13.9 m²/g. (*Id.*, page 4.) As explained in the M.P.E.P.:

With respect to changing numerical range limitations, the analysis must take into account which ranges one skilled in the art would consider inherently supported by the discussion in the original disclosure. In the decision in *In re Wertheim* . . . , the ranges described in the original specification included a range of "25%-60%" and specific examples of "36%" and "50%" . . . [A new] limitation to "between 35% and 60%" [met] the description requirement.¹ (M.P.E.P. § 2163.05(III) (8th ed., Rev. 2, May 2004))

In *In re Wertheim*, the Court of Customs and Patent Appeals explained that, "[T]he invention claimed does not have to be described in *ipsis verbis* in order to satisfy the description

¹ For the Examiner's convenience, Applicants have included a copy of *In re Wertheim*, 541.F.2d 257 (C.C.P.A. 1976), with this Reply.

Applicant : James J. Cervera et al.
Serial No. : 09/902,884
Filed : July 11, 2001
Page : 10 of 13

Attorney's Docket No.: 08935-245001 / M-4962

requirement of § 112' . . ." 541 F.2d at 265 (quoting In re Lukach, 442 F.2d 967, 969 (C.C.P.A. 1971)). Because the original specification of Applicants' application included the ranges of "greater than about 5 m²/g" and "greater than about 10 m²/g", as well as the specific example of "13.9 m²/g", the original specification of the application provides support for "greater than about 5 m²/g and less than about 14 m²/g", as well as for "greater than about 10 m²/g and less than about 14 m²/g." Accordingly, Applicants request that the rejection of claims 10, 11, and 14-16 be withdrawn.

As amended, claims 22, 25, and 26 recite a primary alkaline battery comprising expanded graphite particles having a D₅₀ particle size that is greater than 40 microns and less than or equal to about 100 microns. Claim 24 recites a primary alkaline battery comprising expanded graphite particles having a D₅₀ particle size that is greater than 40 microns and less than or equal to about 50 microns. The application provides explicit support for expanded graphite particles having a D₅₀ particle size that is between about 35 microns and about 100 microns or between about 40 microns and about 50 microns. (See, e.g., Application, page 2, lines 26-30.) Furthermore, Table 1 of the application discloses expanded graphite particles with a D₅₀ particle size of 40.1 microns. (*Id.*, page 4.) Thus, for at least the reasons provided above, the original specification of the application provides support for expanded graphite particles having a D₅₀ particle size that is greater than 40 microns and less than or equal to about 100 microns or about 50 microns. Accordingly, Applicants request that the rejection of claims 22 and 24-26 be withdrawn.

Applicants have added new claim 50, which recites a primary alkaline battery comprising expanded graphite particles having a D₅₀ particle size that is greater than 50 microns and less than or equal to about 100 microns. As noted above, the application provides explicit support for expanded graphite particles having a D₅₀ particle size that is between about 35 microns and about 100 microns. Furthermore, Table 1 of the application discloses expanded graphite particles having a particle size of 50.2 microns. (*Id.*, page 4.) Thus, for at least the reasons provided above, the original specification of the application provides support for expanded graphite particles having a D₅₀ particle size of greater than 50 microns and less than or equal to about 100 microns.

Applicant : James J. Cervera et al.
Serial No. : 09/902,884
Filed : July 11, 2001
Page : 11 of 13

Attorney's Docket No.: 08935-245001 / M-4962

Claim Rejections – 35 U.S.C. § 103

The Examiner has rejected claims 10, 11, 14-16, 22, and 24-26 under 35 U.S.C. § 103(a) as obvious over U.S. Patent Application Publication No. US 2001/0041293 (Barsukov) in view of JP 10-284056 (Tsuneaki)².

As amended, claims 10, 11, 14-16, 22, and 24-26 recite a primary alkaline battery including a cathode comprising between about 85% and about 90% of manganese dioxide by weight. The combination of Barsukov and Tsuneaki would not have resulted in the battery covered by claims 10, 11, 14-16, 22, and 24-26.

Barsukov discloses an electrochemical cell including an “engineered carbonaceous material” that can include, for example, a mixture of expanded graphite and one or more other graphite materials. (See, e.g., Barsukov, Abstract.) Tsuneaki discloses a secondary battery that can include expanded graphite. (See, e.g., Tsuneaki Abstract.) The Examiner has asserted that it would have been obvious to a person of ordinary skill in the art to use the expanded graphite of Tsuneaki in the battery of Barsukov. (September 23, 2004 Office Action, page 4.)

But even if a person of ordinary skill in the art would have been motivated to use Tsuneaki’s expanded graphite in Barsukov’s electrochemical cell, which Applicants do not concede, the resulting electrochemical cell would not have included between about 85% and about 90% of manganese dioxide by weight. As the Examiner has noted, Barsukov fails to disclose a cathode that includes between about 85% and about 90% of manganese dioxide by weight. (*Id.*, page 5.) Rather, Barsukov discloses cathodes that include EMD and carbon in ratios of 11.5/1 (corresponding to 92% EMD), 13.3/1 (corresponding to about 93% EMD), and 20/1 (corresponding to about 95% EMD). (Barsukov, ¶0021, ¶0024.) However, the Examiner has stated that, “[T]he weight range [of between about 85% and about 90% of manganese dioxide] would be rendered obvious because the artisan would be sufficiently skilled to manipulate the amount of manganese dioxide so as to affect the capacity of the battery.” (*Id.*)

² The Examiner provided both an English abstract and a machine translation of Tsuneaki with the April 13, 2004 Office Action. Applicants herein refer to the abstract as the “Tsuneaki Abstract”, and to the machine translation as the “Tsuneaki Translation”.

Applicant : James J. Cervera et al.
Serial No. : 09/902,884
Filed : July 11, 2001
Page : 12 of 13

Attorney's Docket No.: 08935-245001 / M-4962

But a person of ordinary skill in the art would not have been motivated to decrease the relative amount of manganese dioxide in the battery, at least because this would result in a decrease in the capacity of the battery.

Thus, the combination of Tsuneaki's expanded graphite and Barsukov's electrochemical cell would not have resulted in the battery covered by claims 10, 11, 14-16, 22, and 24-26. Accordingly, Applicants request that the rejection of these claims be withdrawn.

The Examiner also has rejected claims 39-49 under 35 U.S.C. § 103(a) as obvious over Barsukov in view of U.S. Patent Application Publication No. US 2001/0033822 A1 (Ishii).

Applicants have cancelled claims 44 and 45. As amended, claims 39-43 and 46-49 recite a primary alkaline battery including a cathode comprising between about 85% and about 90% of manganese dioxide by weight and expanded graphite particles having a total pore volume greater than about 0.1 milliliter per gram.

Ishii discloses a graphite particle that can be used in a battery anode, and that has a pore volume of 0.4 to 2.0 cc/g. (Ishii, Abstract.) The Examiner has asserted that it would have been obvious to a person of ordinary skill in the art to use graphite having the characteristics of Ishii's graphite in the battery of Barsukov. (September 23, 2004 Office Action, pages 5, 7.) But even if a person of ordinary skill in the art would have been motivated to use Ishii's type of graphite in Barsukov's battery, which Applicants do not concede, the resulting battery would not have included a cathode having between about 85% and about 90% of manganese dioxide by weight. As explained above, Barsukov discloses weight percents of manganese dioxide that are higher than the claimed range, and a person of ordinary skill in the art would not have been motivated to decrease these weight percents, thereby decreasing the capacity of the battery.

Thus, the combination of Ishii's type of graphite and Barsukov's electrochemical cell would not have resulted in the battery covered by claims 39-43 and 46-49. Accordingly, Applicants request that the rejection of these claims be withdrawn.

Applicants believe that the claims are in condition for allowance, which action is requested.

DEC. 21. 2004 12:02PM

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NO. 3043—P. 14

Applicant : James J. Cervera et al.
Serial No. : 09/902,884
Filed : July 11, 2001
Page : 13 of 13

Attorney's Docket No.: 08935-245001 / M-4962

Please apply any charges or credits to deposit account 06-1050.

Respectfully submitted,

Date: DECEMBER 21, 2004

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